

# Daily GLOWBUGS

## Digest: V1 #121

via AB4EL Web Digests @ SunSITE

**Purpose: building and operating vacuum tube-based QRP rigs**

[AB4EL Ham Radio Homepage @ SunSITE](#)

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**Subject: glowbugs V1 #121**

**glowbugs**

**Friday, September 26 1997**

**Volume 01 : Number 121**

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Date: Thu, 25 Sep 1997 15:44:28 -0700 (PDT)

From: Ken Gordon <keng@uidaho.edu>

Subject: Re: Spirit of things and heiracy

> OK do I feel dumb. What's a BJT. Never heard that before.  
>

Bipolar Junction Transistor.

Ken W7EKB

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Date: Thu, 25 Sep 1997 21:34:06 -0500

From: w5hvv@aeneas.net (Rod Fitz-Randolph)

Subject: Regens

Where may I find the schematic and parts list for the Knight Ocean Hopper?

Thank you.

Rod, N5HV

w5hvv@aeneas.net

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Date: Thu, 25 Sep 1997 22:40:59 -0400 (EDT)

From: EWoodman@aol.com

Subject: Shapely 6SN7?

I've been sitting here tonight dusting off and checking out the 160m Hartley (sorry, guess I'm supposed to be working on my regen) and thinking about how

ridiculous the little 6SN7GTB looks plugged into it. The rig is built on a 7X14 oak board 3/4" thick. The tuning cap is big enough and with wide enough spacing to easily be used in at least a 500 watt plate circuit. The primary and secondary coils are wound with #14 insulated wire on a 3" form. All wiring is done with #14 insulated solid wire. Then there's that dinky, short, straight-sided tube that only stands about 2 1/2" tall. Just doesn't have the "look".

Before I carry on any longer.....does anyone know where I might get some of the 6SN7's with the old style envelope? Every time I've purchased those tubes I've asked for them but no one seems to have any. Part of the appeal (at least for me) of the breadboarded Hartleys is the way they look and this just doesn't look right. Any info would be appreciated.

73 Eric KA1YRV

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Date: Thu, 25 Sep 1997 22:29:50 -0600  
From: Dexter Francis <cwest@xmission.com>  
Subject: Re: Shapely 6SN7?

Eric -

Hmmm....My 1946 Sylvania Tube Handbook shows the 6SN7's of that vintage having a T9 bulb. Is there an older flavor than that which you seek? (I can check the inventory for shouldered types.)

- -df

- -----  
Visit our Web site at <http://www.xmission.com/~cwest/>  
e-mail to: [tubes@usa.net](mailto:tubes@usa.net) -or- [cwest@xmission.com](mailto:cwest@xmission.com)  
(P.O. Box 22443, Salt Lake City, Utah 84122)

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Date: Fri, 26 Sep 1997 04:50:18 +0000  
From: Sandy W5TVW <ebjr@worldnet.att.net>  
Subject: Re: Shapely 6SN7?

At 02:40 AM 9/26/97 +0000, you wrote:

>I've been sitting here tonight dusting off and checking out the 160m Hartley  
>(sorry, guess I'm supposed to be working on my regen) and thinking about how  
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>appeal (at least for me) of the breadboarded Hartleys is the way they look  
>and this just doesn't look right. Any info would be appreciated.

>

>73 Eric KALYRV

>

I don't think the 6SN7 was ever produced with the "ST" type envelope. If you want something that looks old, you might go to a 6C8G. It has a "G" style bulb and a 1/4" topcap for one of the triode sections. Also an octal base so you won't have to change the socket.

73,

E. V. Sandy Blaize, W5TVW

"Boat Anchors collected, restored, repaired, traded and used!"

417 Ridgewood Drive

Metairie, LA., 70001

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Date: Fri, 26 Sep 1997 00:14:46 -0500

From: bill@skeeter.frco.com (William Hawkins)

Subject: Re: Shapely 6SN7?

How about the glass 6N7? Sorry, I don't have a manual handy, but I recall being impressed by the glass version. Definitely shapely.

Regards,

Bill Hawkins

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Date: Fri, 26 Sep 1997 07:00:46 -0500 (EST)

From: "Roberta J. Barmore" <rbarmore@indy.net>

Subject: Re: Shapely 6SN7?

Hi!

On Fri, 26 Sep 1997, William Hawkins wrote:

> How about the glass 6N7?

Bing-bing bing! Ladies'n'gennulmen, we have a winner! Or mostly: the 6N7G was indeed indeed sold under shouldered glass, and (for those working from old info), can be thought of as an octal version of the 6A6.

The one fly in the ointment (not a really big one) is that 6N7/6A6 is a middlin' high-mu (35) tube, intended as a tough middleweight Class B AF output (10W). 6SN7 is a new kid on the block, as octals go, having snuck into the barracks between '41 and '46, of which RCA does swear and affirm that it's a couple of 6J5s on a platter, GP triodes with a mu of 20, handy as AF preamps & phase splitters. (I think poor old 6SN7 was worked pretty hard during the war, and may have never even had a chance to grow shoulders. Tch, sad liddle critter).

...I don't give too much of a hang for RCA's hopes about what their tubes would be when they grew up, but the different amplification factors of 6N7 and 6SN7 will make sets using them behave a bit differently--'spect the 6N7 version will need a little more care to make it behave. (To that end, Sandy discussed trade-offs between throttle condenser & potentiometer regen control; in cases like this and unless you really had your heart set on building the receiver in a Sucrets (tm) box, why not use both? You can optimize the feedback capacity and have a quality air-dielectric condenser on the job instead of a who-knows, and even more funky knobs on

the front panel!)

73,  
--Bobbi

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Date: Fri, 26 Sep 1997 14:40:48 +0200  
From: Jan Axing <janax@li.icl.se>  
Subject: The Barracks Bag VFO

FYI, I have created a page with the schematics and parts list for the Barracks Bag VFO discussed earlier here in the list. It's on my glowbug page at <http://www.algonet.se/~janax/glowbug.htm>

73  
Jan, SM5GNN

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Date: Fri, 26 Sep 1997 08:08:50 -0500 (EST)  
From: "Roberta J. Barmore" <rbarmore@indy.net>  
Subject: On chassis for regens

Hi!

I recently finished building a little kit from Great Britain. Alas, no tubes in it (no BJTs, either--all FETS, which would be tubes if they could just manage light up & stay lit), but the \*way\* it is packaged got me thinkin':

It's a modern version of the classic breadboard! Front panel (plus some side braces) solders onto the main PC board; feet are stuck onto the bottom of the main board, and there you are. (Don't set it on your collection of short hunks of bus wire!)

It's a solid little package, something that is of prime importance in a regen receiver if microphonics and touchy adjustment are to be avoided. While I like using a wood board and thick aluminium panel, PC material is easy to find and easy to work--it'd be perfect for glowbug projects! Even the cheap stuff will do (and is easier on your drills than glass-epoxy), since in our application, the copper's always ground.

So there's a thought.

73,  
--Bobbi

(BTW, the little kit hears very well, and produces 5W of 80m RF; but nobody hears \*it!\* Or at least not in an hour's trying. But eventually, especially once I tweak it up to hit 3.58...! Whole thing's about the size of two 6L6s, I shall have to be careful to not misplace it).

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Date: Fri, 26 Sep 1997 09:42:46 -0500 (EST)  
From: "Roberta J. Barmore" <rbarmore@indy.net>

**Subject: A possible book re-reprint?**

Hi!

A couple of years ago, I did some reprints of the 1935 edition of Frank C. Jones' "The Radio Amateur Newcomer," and sold them at about 25 cents over cost. (Used that up in driving to the printer's & Post Office). The run was done on card-stock (which pushed the price up!). I'm thinking about doing a "cost-reduced" second reprinting, using normal paper for all but the covers and attempting a little more clean-up of page edges &c that crept into the first one.

The book's got dope on small regen & "Super Gainer" (a minimum-parts superhet) receivers and small transmitters, from P-P 1J6 xtal jobs through a couple in the 50W range, along with the usual beginner stuff, and includes a double-sided ARRL/Western Union handout, listing Morse & Continental code, Q-sigs, and prefixes as of about 1936 (which I still use, it's more fun to be thinkin' Tibet than Tennessee when working an AC4!).

Any interest? The original run was about \$13.50--hoping to get this run under \$10, though copy rates have gone up since. If enough folks are interested, I'll get firm prices and go from there.

73,  
--Bobbi

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Date: Fri, 26 Sep 1997 10:51:25 -0500 (CDT)  
From: mjsilva@ix.netcom.com (michael silva)  
Subject: Re: Shapely 6SN7?

>I've been sitting here tonight dusting off and checking out the 160m  
>Hartley (sorry, guess I'm supposed to be working on my regen) and  
>thinking about how ridiculous the little 6SN7GTB looks plugged into  
>it.

>

>Before I carry on any longer.....does anyone know where I  
>might get some of the 6SN7's with the old style envelope?

Eric,

The tube you want is the 6F8G, which is a curvaceous (sp? -- don't get to use that word much!) 6SN7. Another choice (higher mu, lower plate dissipation) is the 6C8G. Both are octal based, with one of the grids coming out to a cap.

I agree, straight-sided tubes look kinda sterile in these old circuits...

73,  
Mike, KK6GM

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Date: Fri, 26 Sep 1997 11:07:16 +0000 (GMT)  
From: Jim Glover <psykey@okcforum.org>  
Subject: regen QSO quality? es misc meanderings

Hi, folks!

Although I have built perhaps a dozen (all small) electronics projects, I haven't been in the game for about the last 20 years. The regen receiver will be my first significant project since getting serious about ham radio again lately, and will be my first glowbug project ever. I'll obviously have a lot to learn. I'm taking the first steps by ordering a catalog from Lindsay's, and a few of their books that have been recommended to me, or sound good from the title, and are irresistible, at the price. I was kind of bummed out about this for a little while, since going through all this learning is going to mean that I'll be running behind most of the group in getting started building it, let alone finishing it! But, the more I think about it, the more I think, that's not so bad--this way, I'll get to benefit from all the discussion here as others design and build theirs. In the interest of not biting off more than I can chew, I do not plan to design my own, from scratch, but, I do plan to learn quite a bit first, so that I can wisely choose a circuit to copy (or perhaps modify slightly) which will hopefully meet most of my goals and hopes for a regenerative receiver project.

I'd like for the end result to be something a little better than just a cute novelty. I'd like for it to have wide coverage, and I'd like to be able to use it for making on-the-air contacts. Admittedly, I haven't long hung around in the midst of people who build and use their own tube gear, but... I've heard a lot more people say that a regenerative receiver isn't good enough to be used as part of a ham station, than those with a more positive opinion. I'd like to get the opinions of some of the people here on glowbugs.

When I first got my ham license, I got an old Navy surplus regenerative receiver. This thing was more complicated than what I'll build for my October glowbugs project, but it was definitely what I'd consider QSO quality. In fact, I did use it to make one QSO. Mostly, though, I used it for SWL listening. So, one of the arguments against the use of a regenerative receiver in a ham shack ("It's too hard to learn how to twiddle that darn regeneration control just right so that you can receive signals") doesn't apply to me; I've got the knack, now. (And I suspect it's more like riding a bicycle, than average, in terms of being something that once you learn, you never really forget.)

Another reason I've heard for regenerative receivers being inappropriate for ham communications, is that they're not very selective. Someone recently told me, "The best you could hope for in terms of selectivity would be to get down to about a 1 kilohertz wide bandwidth." Well, my HW-101 with just the SSB filter (no CW filter) does no better than that! I have to use the ol' "filter between the ears" to sort out the signals sometimes. I'd rather have a super-selective receiver, but my HW-101 does well enough. Would a regenerative receiver project of relatively simple ambition be any harder to use, in terms of selectivity?

Of course, one thing I'm sure of is that knowing what frequency I'm on won't always be easy. My strongest interest is in the 30M band, which I'd sometimes be able to anchor at the bottom end, when WWV is coming through on 10 MHz. As someone pointed out to me recently, a regenerative receiver is lousy for spotting. I don't doubt that's true. Is this a problem that I should be able to overcome--or would it be a show-stopper?

Another criticism I've heard about using regenerative receivers for QSO's is that they suffer from "antenna effects". This can be reduced, but not eliminated, I'm told, by using an RF amplifier stage in front of the regenerative detector. What are these antenna effects, how would they interfere with using the receiver for CW QSO's, and would they be a serious enough problem to be a show-stopper in a design with an RF amp in front of the detector?

I'd like for this receiver to also serve well as a general SWL receiver, so I'd like for it to tune down to 2 MHz or so, up through 12 MHz or higher. I'd imagine I'll need to use a scheme such as plug-in coils for changing bands? Is there anything else I'd need to look for in a design, to accomodate this wider coverage goal? It seems I remember hearing that about 20 MHz or so is the upper ceiling of usefulness for a regenerative receiver...is that the best I should hope for (again, in a reasonably simple, but not necessarily totally minimalist, design)?

I'm guessing that as I collect information, I'll probably find a design or two that uses something like two (dual) tubes, one of which serves as an RF amp and detector, and the other providing a couple of stages of audio amplification. Am I barking up the right tree here? What else should I be looking for?

I'm ordering those Lindsay books today, and I can tell already that I'll be checking the mail first thing every day when I get home, until they arrive... It's been really amusing to me to discover that this stuff is no less fun now, than it was when I was a kid!

--Jim

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Date: Fri, 26 Sep 1997 09:38:20 -0700  
From: Walt Turansky <turansky@xroads.com>  
Subject: Re: Shapely 6SN7?

My 80 meter Hartley is similarly built with the exception of using 1/4" copper tubing for the coil and #12 buss wire for interconnects. I agree that it didn't look right with a 6SN7 so I first put in a 6AS7 which has the ST-14? envelope and it looked great. There is a picture of BA Bob's

Hartley with a 6AS7 on the Boatanchor page. Then I put a 6336 in and am using it now, running 250-260 volts on the plate and getting about 5 watts out with 20 watts in. Both the 6AS7 and the 6336 use the same base pinout as the 6SN7 so you can swap them in and out. The 6AS7 data sheet is available at <http://www.svetlans.com>

The next thing I want to do is to change the octal socket for a 4 pin and use an 812. Hopefully I'll have time to do so and complete the mods to the regen.

73 de N7QFN,  
Walt

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Date: Fri, 26 Sep 1997 09:44:25 -0700  
**From:** Walt Turansky <[turansky@xroads.com](mailto:turansky@xroads.com)>  
**Subject:** Correction of Svetlana's URL

I had a type in the URL in my last message on 6AS7's.

The correct URL for Svetlana is <http://www.svetlana.com>

73 de N7QFN,  
Walt

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Date: Fri, 26 Sep 1997 11:26:32 -0700  
**From:** Walt Turansky <[turansky@xroads.com](mailto:turansky@xroads.com)>  
**Subject:** Refurbishing the Ole Regenny

I got the old 80 meter regen out of the garage last night, hooked up the batteries and antenna, and found out it still works. Then I started thinking about what I wanted to change for the October project.

Here's what I'm starting with:

30 detector with 11 M ohm grid leak, 20 pF grid coupling cap. The tuning cap is a small, antique brass, single plate with 20 pF of padding caps driven by a vernier dial. The coil is 40 turns of #14 house wire on a 2 3/8" diameter piece of plastic pipe. Antenna coupling is a single turn of #14 wire about 4 1/2" in diameter spaced equidistantly around the coil about half-way up. Regeneration control is by throttle condenser which is an antique brass cap of about 150 pf padded with 100 pF of silver-micas. I'm running 45 volts on the plate. The audio stage is a 30 that is tranformer coupled with 45 volts on the plate.

Last night, it worked great. It is sensitive, selective and regeneration contol is very smooth. But, in the spirit of continuous improvement I intend to try changing to a 32 detector with 22.5 volts on the screen grid with other conditions as above. Then I plan to add another transformer coupled, 30 audio stage.

All comments and suggestions are encouraged.



73 de N7QFN,  
Walt

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Date: Fri, 26 Sep 1997 13:01:29 -0700  
From: "Frank A. West" <ke6vhm@earthlink.net>  
Subject: Re: regen QSO quality? es misc meanderings

YEAH!!! What he said. I have been mulling over the same things, and a million more. This project is just what I need. I was even thinking of using an old receiver to start with. But being NEW to OLD radio... It is so mind boggling sometimes. But I'm ready, go ahead and answer him. Thanks so much Jim for writing that for me. And I know I will have another hundred or so questions to add.

TTFN 73 Frank KE6VHM  
Grid Square DM13  
CW Forever

- -----  
> From: Jim Glover <psykey@okcforum.org>  
> To: glowbugs@www.atl.org  
> Subject: regen QSO quality? es misc meanderings  
> Date: Friday, September 26, 1997 4:07 AM  
>  
> Hi, folks!  
>  
> Although I have built perhaps a dozen (all small) electronics  
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Date: Fri, 26 Sep 1997 14:39:23 -0700 (PDT)  
From: Ken Gordon <keng@uidaho.edu>  
Subject: Re: Shapely 6SN7?

>  
> On Fri, 26 Sep 1997, William Hawkins wrote:  
> > How about the glass 6N7?  
>  
>  
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> The one fly in the ointment (not a really big one) is that 6N7/6A6 is a  
> middlin' high-mu (35) tube, intended as a tough middleweight Class B AF  
> output (10W).

Another possible fly in the ointment is the fact that both triode sections share a common cathode. I have found this to be a big problem in some circuits.

Ken W7EKB

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Date: Fri, 26 Sep 1997 15:12:33 -0700 (PDT)  
From: Ken Gordon <keng@uidaho.edu>  
Subject: Re: regen QSO quality? es misc meanderings

I used an RAL-7 as my only station communications receiver for a number of years, beginning in 1958 or so. It is a U.S. Navy receiver covering 600 kc through 23 mc and is a TRF receiver. It has two RF amplifiers, a regenerative detector and 2 stages of audio. I found it quite easy to use except for the frequency calibration, which was a scale similar to a 0 to 100 logging scale. The only way you could determine what frequency you were on was to use the calibration charts in the manual.

The regeneration control knob was almost 3" in diameter and setting the regeneration at the proper point was absolutely not a problem.

It also had an excellent, switchable, audio filter.

Although its selectivity was a little broad, I used only CW in those days anyway and didn't much care.

I also picked up an RAK-7. It covered 15 kc to 600 kc with a bit of overlap. I used it to listen to the big Navy VLF stations send 30 wpm CW 5 letter code groups so I could practice my typing. There was one on 14.8 kc, and a really loud one at 16 kc.

The RAL/RAK receivers were incredibly stable, ran at low voltages (180 and 90 vdc) and didn't put out any heat to speak of. They were pretty heavy though at around 80 lbs. The power-supply had a BIG ballast tube in it which DID put out a lot of heat, but it was separate and sat on the floor.

The selectivity of the RAK series was good enough to give "single-signal" reception (only one side of "zero beat"). However, the selectivity got wider as one tuned UP in frequency. Selectivity depended almost entirely on the "Q" of the coils, and if size was any factor, their "Q" must have been pretty good.

If I could find an RAL and/or and RAK somewhere for REALLY cheap, I would definitely get one/them despite the fact I would probably have to put it/them in our bedroom.

I also resurrected a pretty wrecked RAK-8 once. I had to replace the complete panel, so I rack mounted it. Since it didn't have a power-supply, I built a very small voltage regulated one in a small aluminum box and connected the RAK to it with a homemade cable. It ran in a laboratory for several years. The power supply never did get so much as warm. Power drain on the RAK/RAL is very low.

Ken W7EKB

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Date: Fri, 26 Sep 1997 17:13:26 -0700  
From: Walt Turansky <turansky@xroads.com>  
Subject: Refurbishing the Ole Regenny

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73 de N7QFN,  
Walt

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End of glowbugs V1 #121  
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Created by **Steve Modena, AB4EL**  
Comments and suggestions to **modena@SunSITE.unc.edu**

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